Listing of Claims:

Please make the following amendments to the specification (material to be inserted in replacement paragraphs or sections is in **bold and underline**, and material to be deleted is in ~~strikeout~~ or (if the deletion is of five or fewer consecutive characters or would be difficult to see) in double brackets [[ ]]). In brief, applicants have canceled claims 41-74, in response to the restriction requirement.

1. (Original) A plate for holding a plurality of samples, comprising:

a frame;

a plurality of sample wells disposed in the frame for holding a corresponding plurality of samples; and

a thermal isolation structure associated with the frame and disposed between the sample wells to reduce thermal transfer between adjacent sample wells.

2. (Original) The plate of claim 1, the frame being substantially rectangular, where the length of the frame ranges between about 125 mm and about 130 mm, and where the width of the frame ranges between about 80 mm and about 90 mm.

3. (Original) The plate of claim 1, where the number of sample wells in the plate is selected from the group consisting of 96, 384, 768, 1536, 3456, and 9600.

4. (Original) The plate of claim 1, where the density of sample wells in the plate is at least about 1 well per 81 mm^2.

5. (Original) The plate of claim 1, where the volume of each sample well in the plate is less than about 500 microliters.

6. (Original) The plate of claim 1, where the sample wells and the thermal isolation structure are composed at least in part of different materials.

7. (Original) The plate of claim 1, the sample wells having a central axis, where the thermal isolation structure substantially surrounds the central axis of each sample well without obstructing transmission of thermal infrared radiation along the central axis.

8. (Original) The plate of claim 1, where the thermal isolation structure comprises a thermal buffer disposed between the sample wells to reduce thermal transfer between adjacent sample wells, the thermal buffer having a higher thermal mass than the sample wells and corresponding samples.

9. (Original) The plate of claim 8, where at least a portion of the thermal buffer is a metal.

10. (Original) The plate of claim 9, where the metal is aluminum.

11. (Original) The plate of claim 8, where at least a portion of the thermal buffer is a high-thermal-capacitance plastic.

12. (Original) The plate of claim 8, where the thermal isolation structure further comprises a thermal barrier disposed between adjacent sample wells to reduce thermal transfer between the adjacent sample wells, the thermal barrier including an infrared-reflective material that reflects at least about half of the thermal infrared radiation incident on the barrier.

13. (Original) The plate of claim 12, where the thermal isolation structure further comprises a plurality of isolation wells disposed in the frame, where each of the sample wells is positioned in a corresponding isolation well, and where none of the isolation wells and sample wells is in fluid contact with another of the isolation wells and sample wells.

14. (Original) The plate of claim 8, where the thermal isolation structure further comprises a plurality of isolation wells disposed in the frame, where each of the sample wells is positioned in a corresponding isolation well, and where none of the isolation wells and sample wells is in fluid contact with another of the isolation wells and sample wells.

15. (Original) The plate of claim 1, where the thermal isolation structure comprises a thermal barrier disposed between adjacent sample wells to reduce thermal transfer between the adjacent sample wells, the thermal barrier including an infrared-reflective material that reflects at least about half of the thermal infrared radiation incident on the barrier.

16. (Original) The plate of claim 15, where the reflectivity of the infrared-reflective material is at least about 0.8.

17. (Original) The plate of claim 15, where the emissivity of the infrared-reflective material is at most about 0.2.

18. (Original) The plate of claim 15, where the infrared-reflective material is selected from the group consisting of AlSiO and gold.

19. (Original) The plate of claim 15, the sample wells having a top and bottom, where the tops of the sample wells define a plane, and where each straight line below the plane connecting a portion of one sample well to a portion of an adjacent sample well intersects the thermal barrier.

20. (Original) The plate of claim 15, where the thermal isolation structure further comprises a second thermal barrier disposed between adjacent sample wells to reduce thermal transfer between the adjacent sample wells, the second thermal barrier also including an infrared-reflective material that reflects at least about half of the thermal infrared radiation incident on the barrier.

21. (Original) The plate of claim 15, where a portion of the frame is disposed between the two thermal barriers.

22. (Original) The plate of claim 1, where the thermal isolation structure further comprises a plurality of isolation wells disposed in the frame, where each of the sample wells is positioned in a corresponding isolation well, and where none of the isolation wells and sample wells is in fluid contact with another of the isolation wells and sample wells.

23. (Original) The plate of claim 1, where the thermal isolation structure comprises a plurality of isolation wells disposed in the frame, where each of the sample wells is positioned in a corresponding isolation well, and where none of the isolation wells and sample wells is in fluid contact with another of the isolation wells and sample wells.

24. (Original) The plate of claim 1, further comprising a plurality of trapped volumes corresponding to each sample well, where the trapped volumes are formed between an outer surface of the sample wells and an inner surface of the corresponding isolation wells, the trapped volumes further reducing thermal transfer to and from samples in the sample wells.

25. (Original) The plate of claim 24, where the trapped volume includes air.

26. (Original) The plate of claim 24, where the trapped volume is at least partially evacuated relative to standard atmospheric pressure.

27. (Original) The plate of claim 24, where at least a portion of the trapped volume is lined by an infrared-reflective material.

28. (Original) The plate of claim 1, further comprising a cover configured to cover the sample wells, reducing evaporative heat loss from samples contained within the sample wells.

29. (Original) The plate of claim 1, further comprising a thermal reference region disposed about the sample wells in the frame, where thermal infrared radiation detected from a sample positioned in at least one of the sample wells may be calibrated using thermal infrared radiation detected from an adjacent thermal reference region.

30. (Original) The plate of claim 29, the sample wells having a central axis, where the thermal reference region includes an annular emissive reference surface positioned about the central axis of each sample well.

31. (Original) A plate device for holding a plurality of samples, comprising:

an insert member defining an array of sample wells, each sample well having a central axis; and

a support member having a thermal isolation framework in a configuration corresponding to the array of sample wells, so that when the insert member engages the support member each sample well is thermally isolated from adjacent sample wells without obstructing the transmission of thermal infrared radiation along the central axis of the sample well.

32. (Original) The plate of claim 31, where the thermal isolation framework comprises a thermal buffer disposed between the sample wells to reduce thermal transfer between adjacent sample wells, the thermal buffer having a higher thermal mass than the sample wells and corresponding samples.

33. (Original) The plate of claim 31, where the thermal isolation framework comprises a thermal barrier disposed between adjacent sample wells to reduce thermal transfer between the adjacent sample wells, the thermal barrier including an infrared-reflective material that reflects at least about half of the thermal infrared radiation incident on the barrier.

34. (Original) The plate of claim 31, where the thermal isolation framework comprises a plurality of isolation wells disposed in the frame, where each of the sample wells is positioned in a corresponding isolation well, and where none of the isolation wells and sample wells is in fluid contact with another of the isolation wells and sample wells.

35. (Original) The plate of claim 31, further comprising a cover configured to cover the sample wells, reducing evaporative heat loss from samples contained within the sample wells.

36. (Original) A plate for holding a plurality of samples, comprising:

a frame;

a plurality of isolation wells disposed in the frame; and

a corresponding sample well for holding a corresponding sample disposed in each of the isolation wells;

where none of the isolation wells and sample wells is in fluid contact with another of the isolation wells and sample wells.

37. (Original) The plate of claim 36, further comprising a plurality of trapped volumes corresponding to each sample well, where the trapped volumes are formed between an outer surface of the sample wells and an inner surface of the corresponding isolation wells, the trapped volumes further reducing thermal transfer to and from samples in the sample wells.

38. (Original) The plate of claim 37, where the trapped volume includes air.

39. (Original) The plate of claim 37, where the trapped volume is at least partially evacuated relative to standard atmospheric pressure.

40. (Original) The plate of claim 37, where at least a portion of the trapped volume is lined by an infrared-reflective material.

41-74. (Canceled)